BNS Solutions

# Quick-Start Guide

## QSK62P Plus

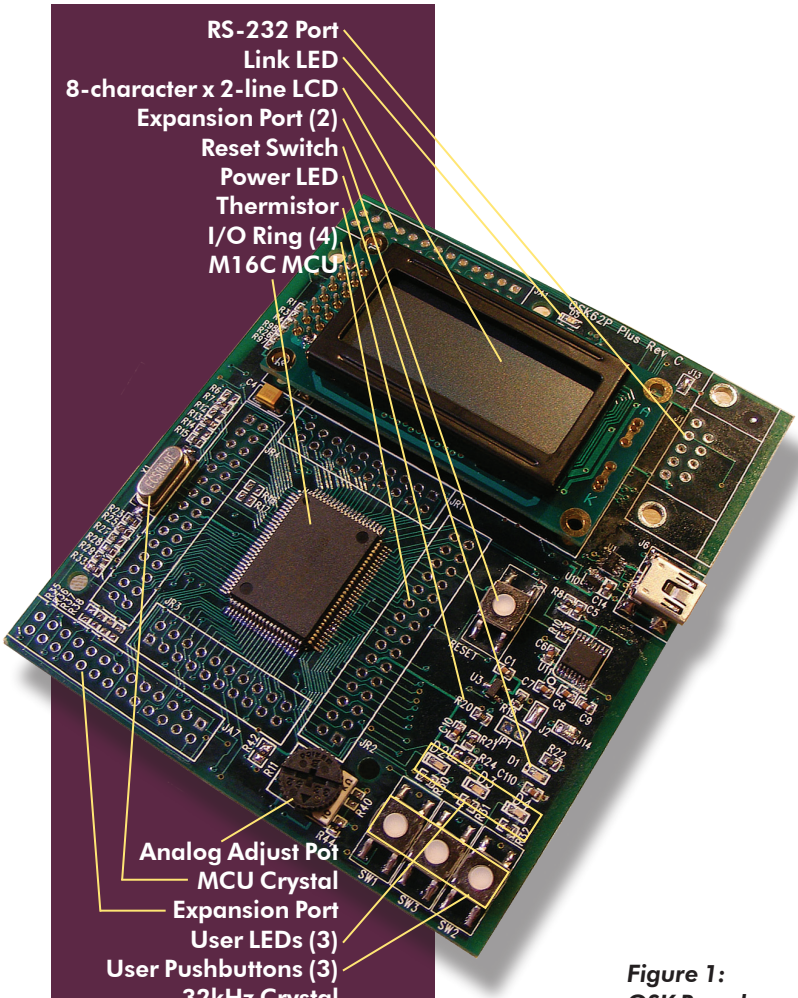



*Figure 1: QSK Board*

***Important Notes***

**Do NOT plug the QSK board into your USB port until instructed to do so in *Section 2: In-Circuit Debugger USB Driver Installation*.**

**Also, during the installation process, you may be prompted to restart your computer. Do NOT restart until the installer has completed installation of all the software items.**

## 1 Development Tools Software Install

Please insert the enclosed CD into your computer's CD-ROM drive. The CD should auto-start, displaying the install Window. This QuickStart Guide and the Installation CD cover the BNS Solutions QSK62P Plus kit. From the opening Window click <**Install...**>. Follow the directions in the installation windows to install the QSK software tools for your kit.

- During the installation process, the AutoUpdater installer will launch. Allow this to proceed.
- If the installation screen does not appear, please browse the CD root folder and double-click on "QSK-Installer.exe".

## 2 In-Circuit Debugger USB Driver Installation

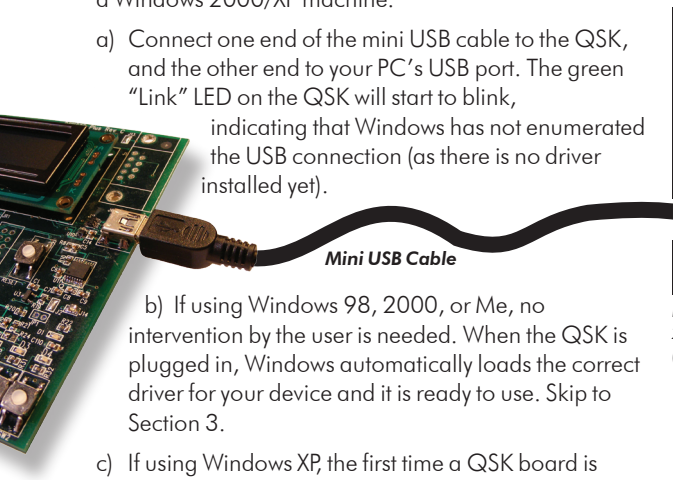
Your QSK board features on-board circuitry for in-circuit debugging (ICD) and programming. The board is powered via the USB bus and does not require any external power supply. The ICD portion of the circuit is located on the back side of the PCB and connects to your PC via a USB cable. It requires the installation of a USB driver on your PC. When you connect the QSK board to your computer for the first time, Windows will recognize the new device and request the driver.

The green Link LED (D5) and the red Power LED (D1) indicate operating status of the QSK board (as shown in the following table).

| QSK Status | Link LED (green) | Power LED (red) |
|---|---|---|
| No Power (USB cable disconnected) | Off | Off |
| Connected, USB not enumerated (driver not installed) | Blinking | On |
| Connected, USB enumerated | On, Solid | On |
| M16C E8 Debugger Software running | On, Solid | On |

Follow the steps below to install the driver for the QSK. Administrator privileges are required to install the driver on a Windows 2000/XP machine.

a) Connect one end of the mini USB cable to the QSK, and the other end to your PC's USB port. The green "Link" LED on the QSK will start to blink, indicating that Windows has not enumerated the USB connection (as there is no driver installed yet).



***Mini USB Cable***

***PC with Windows® 2000, XP or Vista (Figure 2)***

b) If using Windows 98, 2000, or Me, no intervention by the user is needed. When the QSK is plugged in, Windows automatically loads the correct driver for your device and it is ready to use. Skip to Section 3.

c) If using Windows XP, the first time a QSK board is plugged into a different USB port, the Windows XP "Found New Hardware Wizard" window will appear.

d) Select the option "Install the software automatically (recommended)". Windows will then begin installing the USB driver.

   i) Another screen will probably appear stating that this driver has not been XP certified by Microsoft. Click the <**Continue Anyway**> button. (We did not participate in the Microsoft XP driver certification program.)

   ii) After the driver has installed, you will be able to click <**Finish**> to close the wizard.

NOTE: If you have problems installing the drivers, or if

your PC will not recognize the QSK, please see the "Troubleshooting" section of the QSK User's Manual for help.

3

**Demo Program**

The kit ships with a demo program that runs on the board when connected to the PC's USB port.

a) If not already done in step 2a), plug one end of the USB cable into the QSK board and the other into a USB port on your PC.

b) Press the Reset Switch to run the demo program.

   i) The LCD on the board will display a welcome message. After a few seconds, "RT1: xxxx, AN0: xxxx" will be displayed on the LCD.

   ii) The three User LEDs will blink sequentially (back and forth).

   iii) The LED flash rate is controlled by the Analog Adjust (R11) potentiometer (which is connected to the MCU analog-to-digital converter's (ADC) AN0 input).The 10-bit ADC value of AN0 is also shown on the LCD as a decimal number. The input, AN1 value Thermistor R20 is shown on the "RT1:" line of the LCD.

c) Turn the potentiometer clockwise or counter-clockwise. This alters the flash rate of the LEDs, and increases or decreases the AN0 value shown on the LCD.

d) Press the pushbutton switches SW1, SW2, or SW3. This will change the LCD to read "Button x" (x= 1, 2, or 3).

# 4 HEW (IDE) QuickStart

The High-performance Embedded Workshop software (HEW) integrates various tools such as the compiler, assembler, debugger, and editor into a common Graphical User Interface.

a) Launch HEW from the Start menu (Start > (All) Programs > Renesas > High-performance Embedded Workshop > High-performance Embedded Workshop).

b) In the "Welcome!" dialog box:

   i) Verify "Create a new project workspace" is selected.

   ii) Click <**OK**>.

c) In the "New Project Workspace" dialog box:

   i) Verify the "CPU family" is set to "M16C".

   ii) Select your Starter Kit from the "Projects Window"

   iii) Enter any name for the Workspace Name (the Project Name will auto fill).

   iv) Click <**OK**>.

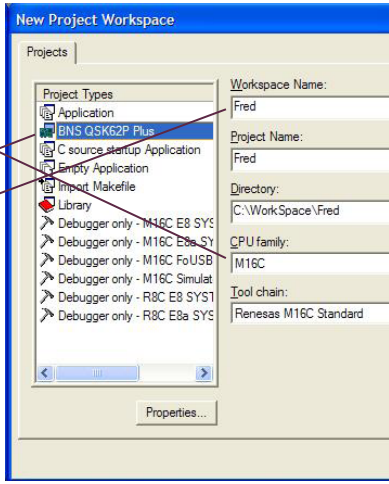



***Figure 3***

d) In the "QSK – Step 1" window:

   i) Select "Tutorial"

   ii) Click <**Next**>.

e) In the "QSK – Step 2" window, click <**Finish**>.

f) In the "Project generator information" window, Click <**OK**>.

g) Click the "Build" icon to compile, assemble and link the project. After the build is complete, the HEW Build window will look similar to Figure 4.

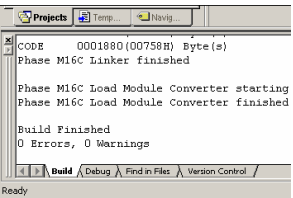



***Figure 4: HEW with the qsktest Project***

h) After ensuring there are no errors, proceed to 5: HEW (Debugger) QuickStart.

NOTE: To learn more on how to use HEW, open the HEW Manual Navigator on your computer (Start > (All) Programs > Renesas > High-performance Embedded Workshop > Manual Navigator).

## 5 HEW (Debugger) QuickStart

a) If not already done, plug one end of the USB cable into the QSK board and the other into a USB port on your PC.

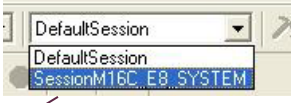



*Figure 5*

b) Use the Session pull-down box and select "SessionM16C_E8_System" as shown. If requested to save the session, click <**Yes**>.

c) Click the <Connect> tool button; The "Emulator Settings" dialog box opens. In this dialog, you need to select if the downloaded program will run under debugger control or "stand alone":

i) Click <Erase Flash and Connect> to use the debugger. Click <Program Flash> to allow the program to run independently.

ii) In the "Power Supply" section, check <Power Target from Emulator> and click <3.3V>.
**Note:** *The board is already powered up. The purpose of this selection is to let the reduced function debugger located on the board "see" the voltage and operate normally. See the User Manual for additional Information.*

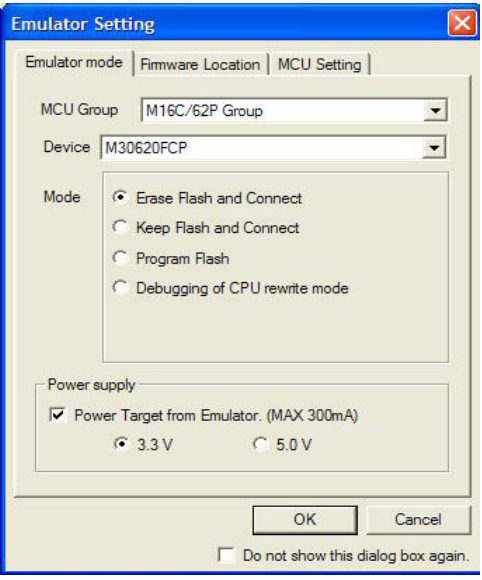



***Figure 6: Emulator Setting Dialog Box***

iii) Click <**OK**>. –

i. If the message "We should download new firmware" appears, click <**OK**>.

ii. If you get an error, disconnect and reconnect the QSK from the USB cable and retry.

d) Click on the "Reset Go" icon to start the program.

e) Click on the "Stop" icon to halt the program.

f) From the "File" pull-down menu, select "Exit". If requested to save workspace and/or session, click <**Yes**>.

## 6 Downloading (Re-Loading) the Demo Program Using HEW as a Programmer

You can use the debugger and HEW to restore the original demo program.

a) If not done already, plug one end of the USB cable into the QSK board and the other into a USB port on your PC.

b) Start HEW as in the previous section and select "**Program Flash**" as the mode. The power section is set as before.

c) When programming is competed a dialog with a checksum will appear, and then a message to disconnect the emulator. Click the "Disconnect" button on the toolbar.

## 7 What are the next steps?

After you have completed this QuickStart procedure, please review the tutorials that came with the kit. The tutorials will help you understand and jumpstart the software development process using Renesas' development tools.

You can access the sample code tutorials for your specific kit via the new project wizard or by browsing to the "C:\Workspace\QSK_62P_Plus" directory on your computer

## HEW/C-Compiler

The High-performance Embedded Workshop User Manual will show you how HEW integrates various tools such as the compiler, assembler, debugger and editor into a common Graphical User Interface.

To access the manual on your computer, go to the HEW menu

Start > (All) Programs > Renesas > High-performance Embedded Workshop > Manual Navigator.

Included in the QSK is the Evaluation Version of the NC30WA C-compiler. The limitations are:

1. No support or warranty without the purchase of a full license.
2. After 60 days, code size is limited to 64 kBytes.

For details, see the Compiler Release Notes

Start > (All) Programs > Renesas > QSK.

For recent updates go to **www.renesasuniversity.com** or, for assistance, email **techsupport.rta@renesas.com**

**For assistance with the QSK please email techsupport@bnssolutions.com**

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BNS Learning